CrossMark

The impact of patients' gender, race, and age on health care professionals' pain management decisions: An online survey using virtual human technology

Laura D. Wandner [a], Marc W. Heft [b], Benjamin C. Lok [c], Adam T. Hirsh [d], Steven Z. George [e], Anne L. Horgas [f], James W. Atchison [g], Calia A. Torres [a], Michael E. Robinson [a,*]

[a] Department of Clinical and Health Psychology, University of Florida, Gainesville, FL, United States
[b] College of Dentistry, University of Florida, Gainesville, FL, United States
[c] Computer and Information Science and Engineering Department, University of Florida, FL, United States
[d] Department of Psychology, Indiana University – Purdue University Indianapolis, Indianapolis, IN, United States
[e] Department of Physical Therapy, University of Florida, Gainesville, FL, United States
[f] College of Nursing, University of Florida, Gainesville, FL, United States
[g] Rehabilitation Institute of Chicago, Chicago, IL, United States

A R T I C L E   I N F O

A B S T R A C T

Background: Previous literature indicates that biases exist in pain ratings. Healthcare professionals have been found to use patient demographic cues such as sex, race, and age when making decisions about pain treatment. However, there has been little research comparing healthcare professionals' (i.e., physicians and nurses) pain decision policies based on patient demographic cues.

Methods: The current study used virtual human technology to examine the impact of patients' sex, race, and age on healthcare professionals' pain ratings. One hundred and ninety-three healthcare professionals (nurses and physicians) participated in this online study.

Results: Healthcare professionals assessed virtual human patients who were male and African American to be experiencing greater pain intensity and were more willing to administer opioid analgesics to them than to their demographic counterparts. Similarly, nurses were more willing to administer opioids make treatment decisions than physicians. There was also a significant virtual human-sex by healthcare professional interaction for pain assessment and treatment decisions. The sex difference (male > female) was greater for nurses than physicians.

Conclusions: Results replicated findings of previous studies using virtual human patients to assess the effect of sex, race, and age in pain decision-making. In addition, healthcare professionals' pain ratings differed depending on healthcare profession. Nurses were more likely to rate pain higher and be more willing to administer opioid analgesics than were physicians. Healthcare professionals rated male and African American virtual human patients as having higher pain in most pain assessment and treatment domains compared to their demographic counterparts. Similarly the virtual human-sex difference ratings were more pronounced for nurses than physicians. Given the large number of patients seen throughout the healthcare professionals' careers, these pain practice biases have important public health implications. This study suggests attention to the influence of patient demographic cues in pain management education is needed.

© 2013 Elsevier Ltd. All rights reserved.

* Corresponding author at: University of Florida, 101 South Newell Drive, Rm. 3151, P.O. Box 100165, Gainesville, FL 32610-9165, United States. Tel.: +1 325 273 5220; fax: +1 352 273 6156.
E-mail address: merobin@ufl.edu (M.E. Robinson).

What is already known about the topic?

Biases exist in pain ratings and healthcare professionals have been found to use patient demographic cues such as sex, race, and age when making pain management decisions.

What this paper adds

Healthcare professionals' pain ratings differed depending on healthcare profession (nurses or physicians). Nurses were more likely to rate pain higher and be more willing to administer opioid analgesics than were physicians.

1. Introduction

Previous literature indicates the presence of sex, race, and age biases in both medical and non-medical settings (Anderson et al., 2000). Research has found that there are pain assessment and treatment disparities depending on the patient's sex, race, and age (Alqudah et al., 2010; Anderson et al., 2000; Breuer et al., 2010; Hirsh et al., 2009a, 2011). Women and minorities are less likely to receive opioid analgesics than their demographic counterparts, post-surgery, while in emergency rooms, and for cancer pain (Calderone, 1990; Chen, 2008; Cleeland et al., 1994; Faherty and Grier, 1984). Although pain is common in older adults, it is often under-recognized and undertreated compared to pain in younger adults (Gauthier and Gagliese, 2011; Herman et al., 2009; Horgas and Elliott, 2004).

There are few studies, however, that compare different healthcare professionals' pain-related decisions and especially how those professionals might be influenced by patient demographic characteristics. Breuer et al. (2010) examined healthcare providers' differential rates of medication prescription (i.e., opioid analgesics, non-opioid analgesics, and antidepressants) to chronic pain patients based on the healthcare professionals' profession (Breuer et al., 2010). They found that healthcare providers who specialized in pain management were more comfortable prescribing medication to chronic pain patients than those who did not specialize in pain management. The Breuer study did not, however, examine whether different types of providers are differentially influenced by patient demographic characteristics when making treatment decisions. In fact, we are not aware of any published study that has examined this possibility. This is an important area of inquiry, which may help provide additional information on sex, race, and age disparities in pain management, as well as inform efforts to reduce such disparities and improve pain care through targeted interventions/education.

Virtual human technology provides a novel, experimental, method for examining how patient demographic cues influence providers' pain management decisions. Virtual humans have good visual fidelity and expressive facial animations and have been rated realistic by laypersons and healthcare professionals (Hirsh et al., 2009b). Hirsh et al. (2009b) found that nurses reported that 70% of the virtual humans' facial expressions were realistic depictions of pain and indicated that they made decisions about the virtual human patients' pain similar to how they would make decisions about real patients. Virtual human technology has successfully been used to investigate the decision making of laypersons, healthcare trainees, and nurses (Alqudah et al., 2010; Hirsh et al., 2009b, 2011; Stutts et al., 2010; Wandner et al., 2010).

Inconsistencies between the clinical research and experimental research findings regarding pain assessment and treatment may be due to studies being observational in nature and not true experiments that systematically manipulate variables (patient sex, race, and age). The virtual human technology can minimize inconsistencies in pain assessment and treatment by standardizing facial features and pain expressions.

Given the importance of examining how different healthcare professionals treat patients experiencing pain, the inconsistency in pain treatment, and the importance of equitable healthcare delivery, the current study sought to extend the previous literature by examining the common pain decision policies of a larger sample of healthcare professionals.

2. Method

2.1. Participants

We recruited 80 physicians (44 men and 36 women) and 113 nurses (10 men and 103 women) for a total sample of 193. Approximately 71% of participants were female, 69% were Caucasian, 11% were African American, 6% were Hispanic, 10% were Asian, and 4% identified as Other. The average age of the healthcare providers was 44 years (range: 22–75), and the average years of professional experience was 15 years (range: 1–47). A majority of the healthcare professionals lived in Florida ($N = 148$). All participants provided informed consent and were compensated $50 for their participation. The demographic characteristics for the total sample, as well as for physicians and nurses, are described in Table 1.

2.2. Procedure

This study was approved by the Institutional Review Board (IRB) at the University of Florida. State registered physicians and nurses were mailed letters inviting them to participate in the study. Those who expressed interest were directed to a secure website to complete the study. After providing consent and completing a demographic questionnaire, the participants observed 32 unique virtual human patient profiles consisting of a text vignette and virtual human video. These patient virtual human profiles have been shown to constitute a reliable and valid approach to examine how patient demographic cues influence providers' pain management decisions (Hirsh et al., 2009a, b; Stutts et al., 2010). For each patient profile, participants read a clinical vignette that described the patient as having low back pain. The low back pain vignette read as follows:

Patient presents with lower back pain for the past year of greater than one year duration. Patient reports that the pain began after a work-related lifting incident. The